TABLE 1. Proposed classification on the basis of embryologic and clinical relevance

Type A	**Systemic-to-systemic shunt**
1	Double-lumen aortic arch with or without arch hypoplasia or coarctation
2	With type A or B interrupted aortic arch
3	Subclavian artery from ascending aorta or as first branch of the aortic arch
Type B	**Systemic-to-pulmonary shunt**
1	With pulmonary obstruction
2	With systemic obstruction
3	With unrestricted systemic and pulmonary flows

from a common trunk or a common bicarotid trunk, respectively, when coexisting with a persistent fifth aortic arch. An appreciation of the nature of these aortic arch anomalies and a full understanding of the persistence of the fifth aortic arch will aid recognition and avoid confusion when encountered during either imaging or surgery.

Guido Oppido, MD[a]
Ben Davies, MRCS (Eng)[b]
Pediatric Cardiac Surgery Unit[a]
S. Orsola-Malpighi Hospital
University of Bologna Medical School
Bologna, Italy
Cardiac Surgical Unit[b]
Royal Children's Hospital
Melbourne, Australia

References

1. Krishnamoorthy KM, Madan H, Tharakan JA. Origin of left subclavian artery from ascending aorta: a variant of double aortic arch. *J Thorac Cardiovasc Surg.* 2006;131:245-7.
2. Krishnan KG, Theodore S, Kiran S, Neelakandhan KS. Embryologic and surgical considerations in tetralogy of Fallot with right arch and aberrant left subclavian artery from the ascending aorta. *J Thorac Cardiovasc Surg.* 2005;130:215-6.
3. Moes CA, Benson LN, Burrows PE, Freedom RM, Williams W, Duckworth JW. The subclavian artery as the first branch of the aortic arch. *Pediatr Cardiol.* 1991;12:39-43.
4. Moes CA, Freedom RM. Rare types of aortic arch anomalies. *Pediatr Cardiol.* 1993;14:93-101.
5. Van Praagh R, Van Praagh S. Persistent fifth arterial arch in man. Congenital double-lumen aortic arch. *Am J Cardiol.* 1969;24:279-82.

doi:10.1016/j.jtcvs.2006.03.065

Reply to the Editor:

We thank Drs Oppido and Davies for their comments on our article. We respect their opinion that this entity has been previously described. Our report sought to highlight the fact that the origin of subclavian artery from ascending aorta has not been described in patients with tetralogy of Fallot. We tried to give an alternative embryologic explanation for the anomaly. The hypothesis proposed by Moes and colleagues[1] is a plausible explanation.

Some features in our patient pointed to a double arch: higher location of the right aortic arch and crossing of left bronchus by the proximal left subclavian artery. In addition, tetralogy of Fallot, as in our case, is the most common congenital heart disease associated with double aortic arch.[2]

K. Mahadevan Krishnamoorthy, DM, DNB, FACC
Hemant Madan, MD
Jaganmohan A. Tharakan, DM
Sree Chitra Tirunal Institute for Medical Science and Technology
Trivandrum, India

References

1. Moes CA, Freedom RM. Rare types of aortic arch anomalies. *Pediatr Cardiol.* 1993;14:93-101.
2. Higashimo SM, Ruttenberg HD. Double aortic arch associated with complete transposition of great vessels. *Br Heart J.* 1968;30:579-81.

doi:10.1016/j.jtcvs.2006.05.036

Traumatic rupture of the aorta in children—stenting or surgical intervention? A word of caution

To the Editor:

We read with interest the article entitled "The effect of changing presentation and management on the outcome of blunt rupture of the thoracic aorta."[1] We commend the authors for their work. We agree with them that the nature and the management of traumatic rupture of the aorta (TRA) is changing. The authors stated that "Currently, we consider all patients to be candidates for endograft approaches if the anatomy is suitable" and concluded by stating that "As newer devices are studied, the endovascular stent grafts might very well ultimately become the primary treatment of choice at all centers." This is where we would like to sound a word of caution with regard to TRA in children. We agree with the proposed guidelines by Kouchoukos and colleagues.[2] A new technique involves uncertainty and risk. The pressure for rapid adoption can lead to deviations from the fundamental principles of surgery, which might compromise the quality and safety of patients.[2] As the technology evolves, there is a danger of subjecting younger patients to stent grafting.

The incidence of TRA in children ranges from 0.1% to 1% of all children with major chest injuries, and their management is a challenge. The experience of most centers is limited to a few case reports. Pediatric patients differ from adult patients in that significant intrathoracic injury can occur in the absence of rib fracture because of the increased compliance and elasticity of the chest wall. The key to management is to maintain a high index of suspicion in cases of high-speed collisions.

There have been case reports of endovascular aortic stent grafts being used in younger patients.[3] The known complications of stents include occlusion of the left main stem bronchus, erosions, perigraft leak, graft migration, limb ischemia, arch perforation, entrapment, infection, pseudoaneurysm, distal embolization, and femoral artery complications. The fate of the stent is unknown, and there are no long-term results.[3]

We recently treated a 10-year-old boy with TRA. Aortography revealed an aneurysm just distal to the left subclavian artery indicative of an acute aortic transection (Figure 1). The possibility of using an aortic stent graft was raised because there was a successful outcome in a 17-year-old boy previously. In view of this child's age and the potential uncertainties of stenting in a growing child, we decided on the operative option.

Through a left thoracotomy, left heart bypass was instituted, and end-to-end anastomosis of the aorta was performed. The patient made an uneventful recovery and was doing well at 4 months' follow-up.

We propose that TRA in children be repaired whenever feasible and that stents be reserved only as a salvage procedure. We recommend the use of left heart bypass to maintain cerebral perfusion and to minimize spinal injury. If heparin is contraindi-